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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,222

06/19/2006

Heinz Schicht

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04/17/2008

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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

ROBINSON, LAUREN E

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

04/17/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/562,222	Applicant(s) SCHICHT ET AL.	
	Examiner LAUREN ROBINSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/7/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 1 and 21-22 are objected to because of the following informalities: The claims are objected to due to the phrase of "layer C based on..." certain materials. This is due to the claim intended to mean comprising certain materials but the manner in which it is written, one of ordinary skill in the art may misinterpret its meaning. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 4, 7, 9, 11-13, 15, and 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1: This claim recites that term "especially" which is indefinite and therefore, it is unclear whether the substrate is glass or not. For the purposes of applying prior art, the examiner is interpreting the claim to mean that glass is an option but not necessary.

Regarding claim 2: This claim recites "advantageously contains ...". The examiner notes that this is unclear because the term "advantageously" can be interpreted as something optional rather than necessary. Therefore, it is unclear as to whether the layer in the claim does or does not, but it would be advantageous to, contain at least one of the

Art Unit: 1794

claimed metals. For the purposes of applying prior art, the examiner is interpreting the claim to mean that glass is an option but not necessary.

Regarding claim 4: The claim recites that another metal is present, "such as aluminum (compounds of formula $TiM_pO_xN_y$ where p and y may be zero)." The examiner notes that the phrase "such as" is indefinite and it is unclear as to whether aluminum is the metal or not. For the purposes of applying prior art, the examiner interprets the aluminum to be an optional metal but not necessary.

Regarding claims 7, 9, 11, 15 and 19-22: Claims 7, 9, 15 and 19-22 claim the term "especially" and it is unclear as to whether the characteristics that follow the term are needed or not. For the purposes of applying prior art, the claims are being interpreted as the characteristics following the above term being merely optional.

Claim 11 claims "such as especially". It is unclear as to whether the characteristics that follow the term are needed or not. For the purposes of applying prior art, the claim is being interpreted as the characteristics following the above term being merely optional.

Regarding claim 12: The claim recites a range and then recites, "preferably less ...". The examiner notes that this claim is indefinite due to the claim including both a broad and narrow ranges. It is unclear as to what range the applicants desire and therefore, for the purposes of applying prior art; the claim is interpreted as needing the broader range.

Also, the claim is indefinite due to the claim reciting a thickness of the oxide layer in any one of the preceding claims. The examiner notes that while claims 1-10 recite

Art Unit: 1794

that the oxide layer is the entire protective oxide layer, claim 11 recites that individual oxide layers comprise the overall protective oxide layer. Due to this, it is unclear as to whether the applicants are intending to claim the thickness of individual layers or the entire protective layer. For the purposes of applying prior art, the claim is interpreted as the thickness of the individual oxide layers within the overall protective oxide coating.

Regarding claim 13: The claim recites that the layer C “may furthermore contain...”. The examiner notes that the above phrase is indefinite because it is unclear whether the layer does furthermore contain the claim's limitations or whether the further limitation is optional. For the purposes of applying prior art, the examiner interprets that the limitation following the above phrase is optional.

Regarding claim 17: The claim recites “the dielectric final sequence” in any one of the preceding claims, but the examiner notes that there is no antecedent basis for this limitation. For the purpose of applying prior art, it is the examiner's position that a dielectric final sequence is within the coating.

Regarding claim 18: The claim recites “the multilayer” in any one of the preceding claims has a sequence with a silicon (C) layer that is surmounted by a cover layer with a plurality of metal and metal oxide layers in between. The examiner notes that “the multilayer” type structure in any one of the preceding claims only include the cover layer and the silicon layer and therefore, there is no antecedent basis for the layers in between. For the purposes of applying prior art, it is the examiner's position that the multilayer coating has the applicants' claimed structure.

Claim Rejections - 35 USC § 102

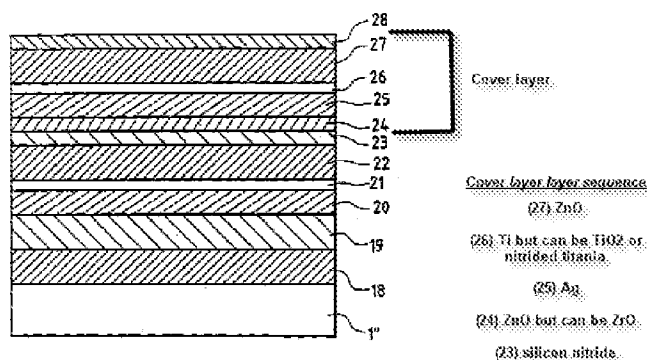
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Grimal et al. (FR 2766174).

Grimal et al. teaches a transparent substrate which comprises a coating thereon (abstract). The coating and the substrate comprise a structure similar to the one below and the list on the right of said structure provides suitable interchangeable materials within the below layers as taught by the reference (Pg. 2, Par. 6-13, Pg. 3, Par. 1-7, Pg. 4, Par. 12, Tables).



The reference teaches that that coating is comprised of at least one layer (s), which corresponds to applicants' claim (C), which is comprised of silicon nitride or tin oxide (Pg. 1, Par. 6-11 and Pg. 2, 1-5). The at least one layer (s) is illustrated above as number 18 and 23 (Table 2). The reference also teaches that the layers (s) are surmounted by a cover layer as illustrated. The cover layer is characterized as an oxide-

based mechanical protection layer (Pg. 1, Par. 5) and the oxides in the layer can be oxynitrided (Pg. 2, Par. 6-7) **(Claim 1)**.

Also, since it was discussed above that the term advantageously in claim 2 is being interpreted as optional, the reference does not need to teach the claimed metals but as illustrated, the cover layer is comprised of Ti, etc **(Claim 2)**. Also, the reference teaches that stoichiometric titania can be present as illustrated **(Claim 3)** or the titania can be oxynitrided which would inherently provide a structure of TiO_xN (Pg. 2, Par. 6-7). Also, as shown above, silver is present and adjacent to the titania layer and the examiner notes that since the titania and silver layers are bonded, it is the examiner's position that it is inherent that the titania and silver compounds will bond creating the applicants' claimed formula in a portion of the titania layer **(Claim 4)**. Also, the examiner notes that while the reference teaches that it the titania can be oxynitrided titania, as discussed above, it can be interchangeably substituted for stoichiometric titanium oxide (TiO_2) **(Claim 5)**.

As also illustrated, the protective cover layer can be comprised of a zinc oxide **(Claim 6)**. The examiner notes, as illustrated, that the zinc oxide layer is adjacent and bonded to the titania layer and as discussed above, it will be inherent that the compounds will bond which will create a mixed formula comprising zinc oxide and titanium oxide in a portion of each layer **(Claim 7)**. The reference also teaches that the zinc oxide can be doped with In (Pg. 3, Par. 2) and therefore since the action of bonding the layers created the mixed oxide formula, the mixed oxide formula will also be comprised of the doped In **(Claim 8)**.

Furthermore, the reference teaches that the cover layer can be comprised of a functional layer comprised of a zirconia metallic substance and the chosen metallic substance can be an oxide type as illustrated above (Pg. 3, Par. 3) **(Claim 9)**. Also, they teach that the chosen metal oxide can be doped with a metal such as In (Pg 3, Par. 3) **(Claim 10)**. Also, as illustrated, the protection cover layer is comprised of a superposition of oxide layers such as the titania being adjacent to the zinc oxide **(Claim 11)**. The reference also teaches that the individual oxide layers can have thicknesses within the range of 1 and 25 nm (Tables) **(Claim 12)**. Also, as discussed above, claim 13 does not necessarily need to contain an additional metal **(Claim 13)**.

Even further, the reference teaches that the silicon nitride layers (s) can have a thickness within the applicants' range (Pg. 2, Par. 6 and Tables) **(Claim 14)**. Also, the substrate in this teaching can be characterized in that the coating has a solar control function which reflects solar radiation (Pg. 1, Par. 3) **(Claim 15)**. The reference also teaches that functional layers can be within the cover layer such as metal nitride based layers (Pg. 3, Par. 2) **(Claim 16)** and as disclosed in Table 3, the coating can have a dielectric sequence of an oxide/silicon nitride/oxide **(Claim 17)**. Furthermore, as disclosed in Table 3, which discusses the multilayered system illustrated above, the multilayer coating can have the comprised sequence having the order of tin oxide (which as discussed can be silicon nitride)/zinc oxide/silver/ZnO/silicon nitride/cover layer above silicon nitride as provided in the illustration **(Claim 18)**.

Also, the coating preserves its properties after heat treatment (Pg. 2, Par. 6) **(Claim 19)** and the overall coating and substrate can be used to manufacture a glazing

assembly (Pg. 1, Par. 2) **(Claim 20)**. Furthermore, the process of laminating the above coating onto the substrate improves the mechanical resistance of the substrate **(Claim 21)** and the laminate was used in order to improve the mechanical resistance of said substrate (Pg. 3, Par. 6) **(Claim 22)**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAUREN ROBINSON whose telephone number is (571)270-3474. The examiner can normally be reached on Monday to Thursday 6am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-2721284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lauren E. T. Robinson

Application/Control Number: 10/562,222
Art Unit: 1794

Page 9

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AU 1794

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Examiner, Art Unit 1794

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Supervisory Patent Examiner, Art Unit 1794